

***QUALITY MONITORING  
USING  
CASE MIX AND  
ADVERSE EVENT  
OUTCOME REPORTS***

***Implementing Outcome-Based  
Quality Improvement at a  
Home Health Agency***

***2001***

***Department of Health and Human Services  
Health Care Financing Administration***



## SECTION 1

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### INTRODUCTION

This manual is the second in a three-manual series intended to assist home health agencies to implement the steps in outcome-based quality improvement (OBQI). The first manual, titled *Implementing OASIS at a Home Health Agency to Improve Patient Outcomes (OASIS Implementation Manual)*, introduced agencies to OBQI and to its first step, the collection of uniform health status data on patients receiving home health care. The set of data items utilized in this step is termed the Outcome and Assessment Information Set or OASIS. Home health agencies subject to Medicare Conditions of Participation began collecting OASIS data on all patients receiving skilled care in summer 1999.

The first agency-level reports resulting from the transmission of OASIS data will soon be available. These reports are intended for use in the agency's quality monitoring program. One report, titled the *Case Mix Report*, presents characteristics of the agency's patients at start (or resumption) of care. The second report, the *Adverse Event Outcome Report*, displays incidence rates for infrequent untoward events (outcomes) comparing the agency to a reference sample. This manual describes each of these reports in detail and discusses their use for quality monitoring purposes.

The third manual in the series will present the *Risk-Adjusted Outcome Report*, the cornerstone of OBQI, and its use for agency quality improvement. These outcome reports are scheduled for production approximately one year from now.

This manual comprises one part of a three-part *Outcome-Based Quality Monitoring User's Manual*. The second part of the larger manual is entitled *Accessing OBQM Reports*. It provides the information needed to obtain your agency's reports. The third component is an Appendix to the user's manual entitled *Guidelines for Reviewing the Case Mix and Adverse Event Outcome Reports*. You are strongly advised to reproduce these guidelines and to share them with any individual or groups to whom you present your reports.

This manual is organized in the following manner. Sections 2 and 3 present each report separately -- the case mix report in Section 2 and the adverse event outcome report in Section 3. The data sources for each report are presented, the case mix variables and adverse event outcome measures are defined, and the meaning of each report is discussed. Sample reports are used to illustrate the features described.

In Section 4, precise instructions on using the reports for quality monitoring in an agency are presented. The steps to follow in an overall care improvement process are included and are illustrated with sample reports from a hypothetical

home care agency. Readers should carefully review this section and follow the procedures described to receive the maximum benefit from their own reports.

Section 5 introduces the role of these reports in the agency's overall quality program. Under the Medicare program Conditions of Participation (COP) for home health agencies, the reports have a connection to an agency's overall program evaluation and to the requirement for quarterly record review. The use of the reports in addressing these requirements is discussed.

When the case mix and adverse event outcome reports are received by agencies, we expect one result to be an increased emphasis on data accuracy within the agency. (Such data accuracy issues can be highlighted or exposed when the reports based on these data are reviewed.) Chapter 12 of the *OASIS Implementation Manual* contains approaches for monitoring and increasing data accuracy within the agency. HHAs are advised to refer to this chapter for detailed data quality audit procedures.

As the first reports resulting from OASIS data collection, the case mix and adverse event outcome reports provide home health agencies their first opportunities to begin using outcomes for quality monitoring purposes. *Outcome enhancement* is the term applied to the investigation of specific patient outcomes, focusing on those aspects of care delivery that led to these outcomes. Evaluating or investigating these care processes entails reviewing the care provided to determine any needed changes in care delivery. Such recommendations for change should be systematically documented in a written plan. In addition, the plan should be thoroughly implemented and continually monitored in order to effectively change care delivery. Once quality monitoring and performance improvement are successfully implemented in an agency and become "steady-state" activities, they emerge as powerful agency tools to continuously improve care for the benefit of patients.

We strongly encourage all agencies to take advantage of the information presented in the reports to provide direction for their continuous quality monitoring activities. These early steps will lay the foundation for subsequent quality improvement efforts based on outcomes in response to risk-adjusted outcome reports expected to be available next year.

## SECTION 2

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### THE CASE MIX REPORT

This section describes the *Case Mix Report*, explains how OASIS data contribute to case mix reports, and provides guidance for interpreting and making use of the information presented.

#### A. CASE MIX REPORT DEFINED

A case mix report is a numeric table that indicates how the case mix profile of one home health agency compares to a national reference sample, and, optionally, how the case mix of an agency compares to itself at an earlier point in time. Case mix refers to the characteristics of the patients for whom a home health agency provides care. The case mix report presents a picture (or snapshot) of what a home health agency's patients look like at the beginning of a care episode. (The beginning of a care episode is marked by either a start of care or a resumption of care following an inpatient stay.) At the present time, the report is a picture of only Medicare or Medicaid patients since these are the only patients for whom home health agencies are transmitting OASIS data to HCFA.

A sample case mix report for a hypothetical home health agency, Faircare Home Health Services, is presented in Table 2.1.

It is important to realize that a patient who is admitted to your agency, then is transferred to an inpatient facility WITHOUT discharge, then resumes care, and is subsequently discharged, actually is represented as two episodes of care in the report. One episode goes from start of care to transfer to inpatient facility, while the second goes from resumption of care to discharge. This approach to defining an episode of care will be used for all reports that are based on OASIS data. It should also be noted that this is not the same as a payment episode under PPS.

Notice in the sample case mix report for Faircare Home Health Services that the current report period includes 601 patients. This number is found in the heading at the top of the report. The reference sample -- the patients to whom Faircare's patients are being compared -- consists of 29,983 patients in the sample report. The reference sample is composed of all patients served by home health agencies that are subject to the OASIS reporting requirement, subject to data quality screening criteria. The reference sample will be much larger for actual reports than it is in this hypothetical example.

**TABLE 2.1: Sample Case Mix Report.**

Agency Name: Faircare Home Health Services  
 Agency ID: HHA01  
 Location: Anytown, USA  
 Medicare Number: 007001  
 Medicaid Number: 99988001

Requested Current Period: 09/1999-08/2000  
 Actual Current Period: 09/1999-08/2000  
 Number of Cases in Current Period: 601  
 Number of Cases in Reference Sample: 29983  
 Date Report Printed: 11/30/2000

### All Patients' Case Mix Profile at Start/Resumption of Care

	Current Mean	Reference Mean	Sig.		Current Mean	Reference Mean	Sig.
<b>Demographics</b>				<b>ADL Status Prior to SOC/ROC</b>			
Age (average in years)	70.75	72.78	**	Grooming (0-3, scale average)	0.66	0.52	**
Gender: Female (%)	69.4%	62.9%	**	Dress upper body (0-2, scale avg.)	0.35	0.35	
Race: Black (%)	1.7%	10.7%	**	Dress lower body (0-3, scale avg.)	0.70	0.63	
Race: White (%)	97.5%	85.5%	**	Bathing (0-5, scale average)	1.33	1.20	
Race: Other (%)	0.8%	3.8%	**	Toileting (0-4, scale average)	0.39	0.38	
<b>Payment Source</b>				Transferring (0-5, scale average)	0.38	0.44	**
Any Medicare (%)	80.4%	82.6%		Ambulation (0-5, scale average)	0.70	0.71	
Any Medicaid (%)	12.9%	14.3%		Eating (0-5, scale average)	0.22	0.21	
Any HMO (%)	3.0%	5.8%	*	<b>IADL Disabilities at SOC/ROC</b>			
Medicare HMO (%)	1.3%	2.2%		Light meal prep (0-2, scale avg.)	1.02	0.90	**
Any third party (%)	19.9%	21.9%		Transportation (0-2, scale avg.)	1.05	0.99	**
<b>Current Residence</b>				Laundry (0-2, scale average)	1.62	1.51	**
Own home (%)	74.7%	78.7%		Housekeeping (0-4, scale avg.)	2.89	2.68	**
Family member home (%)	20.5%	14.1%	**	Shopping (0-3, scale average)	2.10	2.06	
<b>Current Living Situation</b>				Phone use (0-5, scale average)	0.63	0.72	
Lives alone (%)	28.6%	29.4%		Mgmt. oral meds (0-2, scale avg.)	0.69	0.70	
With family member (%)	66.7%	64.2%		<b>IADL Status Prior to SOC/ROC</b>			
With friend (%)	1.3%	1.6%		Light meal prep (0-2, scale avg.)	0.65	0.56	*
With paid help (%)	2.3%	3.3%		Transportation (0-2, scale avg.)	0.78	0.69	**
<b>Assisting Persons</b>				Laundry (0-2, scale average)	1.10	0.96	**
Person residing in home (%)	57.0%	55.9%		Housekeeping (0-4, scale avg.)	1.93	1.73	*
Person residing outside home (%)	44.3%	53.0%	**	Shopping (0-3, scale average)	1.45	1.32	
Paid help (%)	9.3%	14.1%	**	Phone use (0-5, scale average)	0.49	0.59	
<b>Primary Caregiver</b>				Mgmt. oral meds (0-2, scale avg.)	0.53	0.54	
Spouse/significant other (%)	31.0%	33.6%		<b>Respiratory Status</b>			
Daughter/son (%)	33.0%	26.4%	**	Dyspnea (0-4, scale average)	1.33	1.19	
Other paid help (%)	3.7%	6.1%	*	<b>Therapies Received at Home</b>			
No one person (%)	21.7%	20.2%		IV/infusion therapy (%)	4.3%	3.7%	
<b>Primary Caregiver Assistance</b>				Parenteral nutrition (%)	0.5%	0.3%	
Freq. of assistance (0-6, scale avg.)	4.11	4.10		Enteral nutrition (%)	2.2%	1.8%	
<b>Inpatient DC within 14 Days of SOC/ROC</b>				<b>Sensory Status</b>			
From hospital (%)	69.1%	68.4%		Vision impairment (0-2, scale avg.)	0.32	0.30	
From rehab facility (%)	7.2%	6.4%		Hearing impair. (0-4, scale avg.)	0.38	0.45	**
From nursing home (%)	1.8%	3.3%		Speech/language (0-5, scale avg.)	0.45	0.47	
<b>Med. Reg. Chg. w/in 14 Days of SOC/ROC</b>				<b>Pain</b>			
Medical regimen change (%)	67.7%	81.2%	**	Pain interf. w/activity (0-3, scale avg.)	0.95	0.98	
<b>Prognoses</b>				Intractable pain (%)	14.0%	13.7%	
Moderate recovery prognosis (%)	85.3%	85.9%		<b>Neuro/Emotional/Behavioral Status</b>			
Good rehab prognosis (%)	62.6%	68.2%	*	Moderate cognitive disability (%)	10.8%	11.9%	
<b>ADL Disabilities at SOC/ROC</b>				Severe confusion disability (%)	5.7%	6.9%	
Grooming (0-3, scale average)	1.02	0.86	**	Severe anxiety level (%)	16.7%	11.7%	**
Dress upper body (0-2, scale avg.)	0.56	0.59	*	Behav probs > twice a week (%)	14.0%	5.7%	**
Dress lower body (0-3, scale avg.)	1.22	1.10		<b>Integumentary Status</b>			
Bathing (0-5, scale average)	2.15	2.03		Presence of wound/lesion (%)	31.6%	31.2%	
Toileting (0-4, scale average)	0.63	0.57	**	Stasis ulcer(s) present (%)	3.7%	2.9%	
Transferring (0-5, scale average)	0.64	0.70	**	Surgical wound(s) present (%)	21.1%	22.3%	
Ambulation (0-5, scale average)	1.05	1.07		Pressure ulcer(s) present (%)	8.2%	5.4%	*
Eating (0-5, scale average)	0.33	0.32		Stage 2-4 ulcer(s) present (%)	6.5%	4.5%	**
				Stage 3-4 ulcer(s) present (%)	4.0%	1.4%	**

**TABLE 2.1: Sample Case Mix Report. (cont'd)**

Agency Name: Faircare Home Health Services  
 Agency ID: HHA01  
 Location: Anytown, USA  
 Medicare Number: 007001  
 Medicaid Number: 999888001

Requested Current Period: 09/1999-08/2000  
 Actual Current Period: 09/1999-08/2000  
 Number of Cases in Current Period: 601  
 Number of Cases in Reference Sample: 29983  
 Date Report Printed: 11/30/2000

**All Patients' Case Mix Profile at Start/Resumption of Care**

	Current Mean	Reference Mean	Sig.		Current Mean	Reference Mean	Sig.
<b>Elimination Status</b>				<b>Length of Stay</b>			
UTI within past 14 days (%)	22.5%	9.7%	**	LOS until discharge (avg. in days)	49.52	40.35	**
Urinary incont./catheter present (%)	12.6%	16.7%	**	LOS from 1 to 31 days (%)	46.6%	54.0%	**
Incontinent day and night (%)	10.0%	9.3%		LOS from 32 to 62 days (%)	28.0%	30.0%	
Urinary catheter (%)	6.0%	5.9%		LOS from 63 to 124 days (%)	17.8%	11.8%	**
Bowel incont. (0-5, scale avg.)	0.29	0.23		LOS more than 124 days (%)	7.7%	4.3%	**
<b>Acute Conditions</b>				* The probability is 1% or less that the difference is due to chance, and 99% or more that the difference is real.  ** The probability is 0.1% or less that the difference is due to chance, and 99.9% or more that the difference is real.			
Orthopedic (%)	18.5%	21.5%					
Neurologic (%)	13.1%	9.3%	*				
Open wounds/lesions (%)	33.0%	31.8%					
Terminal condition (%)	5.7%	5.6%					
Cardiac/peripheral vascular (%)	27.0%	30.9%					
Pulmonary (%)	17.3%	16.9%					
Diabetes mellitus (%)	7.7%	8.4%					
Gastrointestinal disorder (%)	12.5%	11.5%					
Contagious/communicable (%)	9.8%	3.0%	**				
Urinary incont./catheter (%)	6.0%	8.1%					
Mental/emotional (%)	9.3%	3.1%	**				
Oxygen therapy (%)	11.2%	11.2%					
IV/infusion therapy (%)	4.3%	3.7%					
Enteral/parenteral nutrition (%)	2.7%	2.0%					
Ventilator (%)	0.0%	0.1%					
<b>Chronic Conditions</b>							
Dependence in living skills (%)	42.1%	35.9%	*				
Dependence in personal care (%)	37.9%	22.9%	**				
Impaired ambulation/mobility (%)	14.0%	13.4%					
Eating disability (%)	4.2%	3.2%					
Urinary incontinence/catheter (%)	13.1%	13.7%					
Dependence in med. admin. (%)	44.1%	39.9%					
Chronic pain (%)	7.7%	5.7%					
Cognitive/mental/behavioral (%)	28.6%	23.5%	*				
Chronic pt. with caregiver (%)	40.4%	34.0%	**				
<b>Home Care Diagnoses</b>							
Infectious/parasitic diseases (%)	13.0%	4.5%	**				
Neoplasms (%)	11.8%	12.3%					
Endocrine/nutrit./metabolic (%)	29.0%	27.1%					
Blood diseases (%)	8.2%	6.7%					
Mental diseases (%)	20.1%	9.9%	**				
Nervous system diseases (%)	13.8%	9.4%	**				
Circulatory system diseases (%)	61.6%	55.3%	*				
Respiratory system diseases (%)	24.3%	19.5%	*				
Digestive system diseases (%)	13.8%	12.0%					
Genitourinary sys. diseases (%)	10.7%	10.4%					
Pregnancy problems (%)	0.5%	0.2%					
Skin/subcutaneous diseases (%)	6.2%	7.4%					
Musculoskeletal sys. diseases (%)	26.1%	23.5%					
Congenital anomalies (%)	1.8%	0.8%					
Ill-defined conditions (%)	24.1%	19.6%	*				
Fractures (%)	12.0%	9.1%					
Intracranial injury (%)	0.2%	0.3%					
Other injury (%)	9.5%	5.9%	**				
Iatrogenic conditions (%)	2.2%	3.1%					

Also at the top of the report, we find the date the report was printed and the report period. The dates of the report period indicate that all patients who had a transfer or discharge on or after the first day of September 1999 and on or before the last day of August 2000 are included in this report. Your agency will be able to select the report period you wish. It is strongly recommended that you select a report period of one year, to ensure that the profile represents all seasons of the year as well as providing a sufficient number of episodes of care to yield statistically valid comparisons between your agency and the reference sample. Note that patients are selected for the report based on the discharge/transfer date for the episode of care. A further condition for inclusion in both case mix and adverse event outcome reports is that there must be a matching start or resumption of care assessment on the OASIS system, which effectively excludes from analysis episodes of care which started prior to the July 1999 effective date of the OASIS reporting requirement for home health agencies.

## **B. SOURCES OF INFORMATION FOR THE CASE MIX REPORT**

Where do the data for the case mix report come from? All your agency's start of care assessments and resumption of care assessments provide the data for the great majority of the case mix variables. Therefore, the case mix report represents an aggregation of patient status at the beginning of an episode of care.

Table 2.2, Source(s) of Case Mix Report Information, lists each measure included in the case mix report along with the OASIS item(s) on which each measure is based. More information on how selected variables are computed, along with variable definitions, is included in the Appendix to this manual.

The OASIS data from the transfer, death, or discharge points (reason for assessment response 6, 7, 8, or 9) are used to compute the length of stay case mix measure. This is found at the very end of the case mix report -- the last section on the bottom right column.

## **C. MEANING OF THE INFORMATION IN THE CASE MIX REPORT**

The case mix report is valuable for several uses in an agency. In the past, most agencies have compiled several pieces of this information on their own. The case mix report provides it without any additional steps of data entry or data analysis, since the report comes directly from the OASIS data you transmit to the State.

**TABLE 2.2: Source(s) of Case Mix Report Information.**

Case Mix Report Measures	OASIS-B1 Item(s)	Case Mix Report Measures	OASIS-B1 Item(s)
<b>Demographics</b>		<b>ADL Status Prior to SOC/ROC</b>	
Age (average in years)	M0066	Grooming (0-3, scale average)	M0640
Gender: Female (%)	M0069	Dress upper body (0-2, scale avg.)	M0650
Race: Black (%)	M0140	Dress lower body (0-3, scale avg.)	M0660
Race: White (%)		Bathing (0-5, scale average)	M0670
Race: Other (%)		Toileting (0-4, scale average)	M0680
<b>Payment Source</b>		Transferring (0-5, scale average)	M0690
Any Medicare (%)	M0150	Ambulation (0-5, scale average)	M0700
Any Medicaid (%)		Eating (0-5, scale average)	M0710
Any HMO (%)		<b>IADL Disabilities at SOC/ROC</b>	
Medicare HMO (%)		Light meal prep (0-2, scale avg.)	M0720
Any third party (%)		Transportation (0-2, scale avg.)	M0730
<b>Current Residence</b>		Laundry (0-2, scale average)	M0740
Own home (%)	M0300	Housekeeping (0-4, scale avg.)	M0750
Family member home (%)		Shopping (0-3, scale average)	M0760
<b>Current Living Situation</b>		Phone use (0-5, scale average)	M0770
Lives alone (%)	M0340	Mgmt. oral meds (0-2, scale avg.)	M0780
With family member (%)		<b>IADL Status Prior to SOC/ROC</b>	
With friend (%)		Light meal prep (0-2, scale avg.)	M0720
With paid help (%)		Transportation (0-2, scale avg.)	M0730
<b>Assisting Persons</b>		Laundry (0-2, scale average)	M0740
Person residing in home (%)	M0350	Housekeeping (0-4, scale avg.)	M0750
Person residing outside home (%)		Shopping (0-3, scale average)	M0760
Paid help (%)		Phone use (0-5, scale average)	M0770
<b>Primary Caregiver</b>		Mgmt. oral meds (0-2, scale avg.)	M0780
Spouse/significant other (%)	M0360	<b>Respiratory Status</b>	
Daughter/son (%)		Dyspnea (0-4, scale average)	M0490
Other paid help (%)		<b>Therapies Received at Home</b>	
No one person (%)		IV/infusion therapy (%)	M0250
<b>Primary Caregiver Assistance</b>		Parenteral nutrition (%)	
Freq. of assistance (0-6, scale avg.)	M0370	Enteral nutrition (%)	
<b>Inpatient DC within 14 Days of SOC/ROC</b>		<b>Sensory Status</b>	
From hospital (%)	M0170 - M0175	Vision impairment (0-2, scale avg.)	M0390
From rehab facility (%)		Hearing impair. (0-4, scale avg.)	M0400
From nursing home (%)		Speech/language (0-5, scale avg.)	M0410
<b>Med. Reg. Chg. w/in 14 Days of SOC/ROC</b>		<b>Pain</b>	
Medical regimen change (%)	M0200	Pain interf. w/activity (0-3, scale avg.)	M0420
<b>Prognoses</b>		Intractable pain (%)	M0430
Moderate recovery prognosis (%)	M0260	<b>Neuro/Emotional/Behavioral Status</b>	
Good rehab prognosis (%)	M0270	Moderate cognitive disability (%)	M0560
<b>ADL Disabilities at SOC/ROC</b>		Severe confusion disability (%)	M0570
Grooming (0-3, scale average)	M0640	Severe anxiety level (%)	M0580
Dress upper body (0-2, scale avg.)	M0650	Behav probs > twice a week (%)	M0620
Dress lower body (0-3, scale avg.)	M0660	<b>Integumentary Status</b>	
Bathing (0-5, scale average)	M0670	Presence of wound/lesion (%)	M0440
Toileting (0-4, scale average)	M0680	Stasis ulcer(s) present (%)	M0468
Transferring (0-5, scale average)	M0690	Surgical wound(s) present (%)	M0482
Ambulation (0-5, scale average)	M0700	Pressure ulcer(s) present (%)	M0445
Eating (0-5, scale average)	M0710	Stage 2-4 ulcer(s) present (%)	M0450
		Stage 3-4 ulcer(s) present (%)	

**TABLE 2.2: Source(s) of Case Mix Report Information. (cont'd)**

Case Mix Report Measures	OASIS-B1 Item(s)	Case Mix Report Measures	OASIS-B1 Item(s)
<b>Elimination Status</b>		<b>Home Care Diagnoses</b>	
UTI within past 14 days (%)	M0510	Infectious/parasitic diseases (%)	M0230, M0240
Urinary incont./catheter present (%)	M0520	Neoplasms (%)	
Incontinent day and night (%)	M0530	Endocrine/nutrit./metabolic (%)	
Urinary catheter (%)	M0520	Blood diseases (%)	
Bowel incont. (0-5, scale avg.)	M0540	Mental diseases (%)	
		Nervous system diseases (%)	
<b>Acute Conditions</b>		Circulatory system diseases (%)	
Orthopedic (%)	M0170, M0180, M0190, M0200, M0210, M0250, M0440, M0500, M0520, M0550	Respiratory system diseases (%)	
Neurologic (%)		Digestive system diseases (%)	
Open wounds/lesions (%)		Genitourinary sys. diseases (%)	
Terminal condition (%)		Pregnancy problems (%)	
Cardiac/peripheral vascular (%)		Skin/subcutaneous diseases (%)	
Pulmonary (%)		Musculoskeletal sys. diseases (%)	
Diabetes mellitus (%)		Congenital anomalies (%)	
Gastrointestinal disorder (%)		Ill-defined conditions (%)	
Contagious/communicable (%)		Fractures (%)	
Urinary incont./catheter (%)		Intracranial injury (%)	
Mental/emotional (%)		Other injury (%)	
Oxygen therapy (%)		Iatrogenic conditions (%)	
IV/infusion therapy (%)			
Enteral/parenteral nutrition (%)			
Ventilator (%)			
<b>Chronic Conditions</b>		<b>Length of Stay</b>	
Dependence in living skills (%)	M0170, M0200, M0220, M0720, M0730, M0740, M0750, M0760, M0770	LOS until discharge (avg. in days)	M0030, M0032, M0906
Dependence in personal care (%)	M0170, M0200, M0220, M0640, M0650, M0660, M0670	LOS from 1 to 31 days (%)	
Impaired ambulation/mobility (%)	M0170, M0200, M0220, M0680, M0690, M0700	LOS from 32 to 62 days (%)	
Eating disability (%)	M0170, M0200, M0220, M0710	LOS from 63 to 124 days (%)	
Urinary incontinence/catheter (%)	M0170, M0200, M0220, M0050	LOS more than 124 days (%)	
Dependence in med. admin. (%)	M0170, M0200, M0220, M0780, M0790, M0800		
Chronic pain (%)	M0170, M0200, M0220, M0430		
Cognitive/mental/behavioral (%)	M0170, M0200, M0220, M0610		
Chronic pt. with caregiver (%)	M0170, M0200, M0220, M0350		

The characteristics of the patients for whom your agency provides care will affect many decisions you make about patient care delivery, including:

- need to develop or modify policies, procedures, or protocols;
- possible care path development, or disease management approaches;
- decisions about obtaining or developing patient education materials; and
- examining potential areas where increased care coordination may be indicated.

You can also review your current staffing in light of the case mix report. You might decide that additional staff of one type or another are needed. If you have an increased percentage of patients with musculoskeletal disease, for example, you might want to be sure that your therapy staff is adequate. Or your current staff may need additional training if your case mix is changing. As illustrations, if you serve more patients with wounds, your current staff may need additional wound care expertise; or if your percentage of patients with terminal conditions has increased, you might need to pursue additional education in end-of-life care.

The case mix report is valuable for your agency's strategic planning and program development. It can be presented to your governing body as evidence of resource allocation or used in budget development. This report is particularly valuable to monitor over time to verify your "hunches" about case mix changes. If, for example, you or your staff observe what you think is a change in the characteristics of patients referred to your agency for care, the case mix report will allow you the opportunity to verify whether such a change has actually occurred, and whether your agency's patients differ from those served by other home health agencies.



## SECTION 3

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### THE ADVERSE EVENT OUTCOME REPORT

This section describes the two forms of the *Adverse Event Outcome Report*, explains how OASIS data contribute to adverse event outcome reports, and provides guidance for interpreting and making use of the information presented.

#### A. ADVERSE EVENT OUTCOME REPORT DEFINED

Adverse events serve as markers for potential problems in care because of their negative nature and relatively low frequency. It is important to emphasize the word "potential" in this definition. Whether or not an individual patient situation results from inadequate care provision can only be determined through investigation of the care actually provided to specific patients.

The adverse events included in this report are outcome measures, in the sense that they represent a change in health status between start or resumption of care and discharge or transfer to inpatient facility. For most adverse event outcomes, change in health status is measured directly (for example, increase in number of pressure ulcers). A few adverse event outcome measures rely on the occurrence of an emergent care encounter for specific reasons as an indicator of change in health status. Three additional adverse event outcomes are based on a combination of patient health status and support available to the patient at discharge, indicative of an unmet need. Because adverse events occur very infrequently and are judged to be serious untoward outcomes, they are treated differently from the outcome measures based on OASIS data that are used in outcome-based quality improvement activities. The adverse event outcome report is not adjusted for variation in patient characteristics, and it includes a much smaller number of outcomes than will the broader risk-adjusted outcome report.

The **graphic** adverse event outcome report displays incidence rates for infrequent, untoward events (or outcomes) comparing one agency to a reference sample (and, in the case of a three-bar report, comparing one agency to itself over time). The graphical method of presentation is used to enhance readability and clarity. Because the number of measures is relatively small, and they are all measured on a common scale (presence or absence of the adverse event), they lend themselves to this mode of presentation more readily than case mix measures.

The second version of the adverse event report is the **tabular** form. In addition to presenting the incidence rates for these events (outcomes) compared to the reference sample, a listing of patients for whom the adverse event occurred is included. The tabular listing is provided to facilitate review of individual cases to

determine to what extent a problem of inadequate care exists, and what specific care practices may need to be changed.

Sample graphical and tabular adverse event outcome reports are presented for a hypothetical home health agency (Faircare) in Figure 3.1 and Table 3.1, respectively. As with the case mix report, the number of cases contributing to the adverse event outcome reports is the total number of patients discharged from the home health agency during the time period selected for the report<sup>1</sup>. The reports express the incidence of each adverse event as a percentage of individuals for whom the adverse event could occur, over the time period of the report. The number of cases contributing to a specific adverse event outcome measure (referred to as complete data cases in the tabular report) is often less than the total cases for a agency, because some individuals are excluded from analysis based on status at start/resumption of care or based on availability of the data needed to calculate the measure. For example, terminal patients are excluded from the analysis of Unexpected Death, because death is the expected outcome for these patients. Similarly, only patients with favorable prognosis at start (or resumption) of care contribute to the Unexpected Nursing Home Admission measure.

## **B. SOURCES OF INFORMATION FOR THE ADVERSE EVENT OUTCOME REPORT**

The adverse event outcome reports rely on information from both the start (or resumption) of care assessment and OASIS data collected at transfer, death, or discharge. Table 3.2 indicates, for each adverse event outcome, the specific OASIS items at each time point used to construct that measure. Detailed definitions of each adverse event outcome are included in the Appendix to this manual. In addition to relying on data from two time points, some adverse event measures are based on multiple data items. For example, the adverse event, Discharged to Community Needing Toileting Assistance, relies on Discharge Disposition (M0870), Assisting Persons (M0350), Ambulation (M0700), and Toileting Ability (M0680) measured at discharge.

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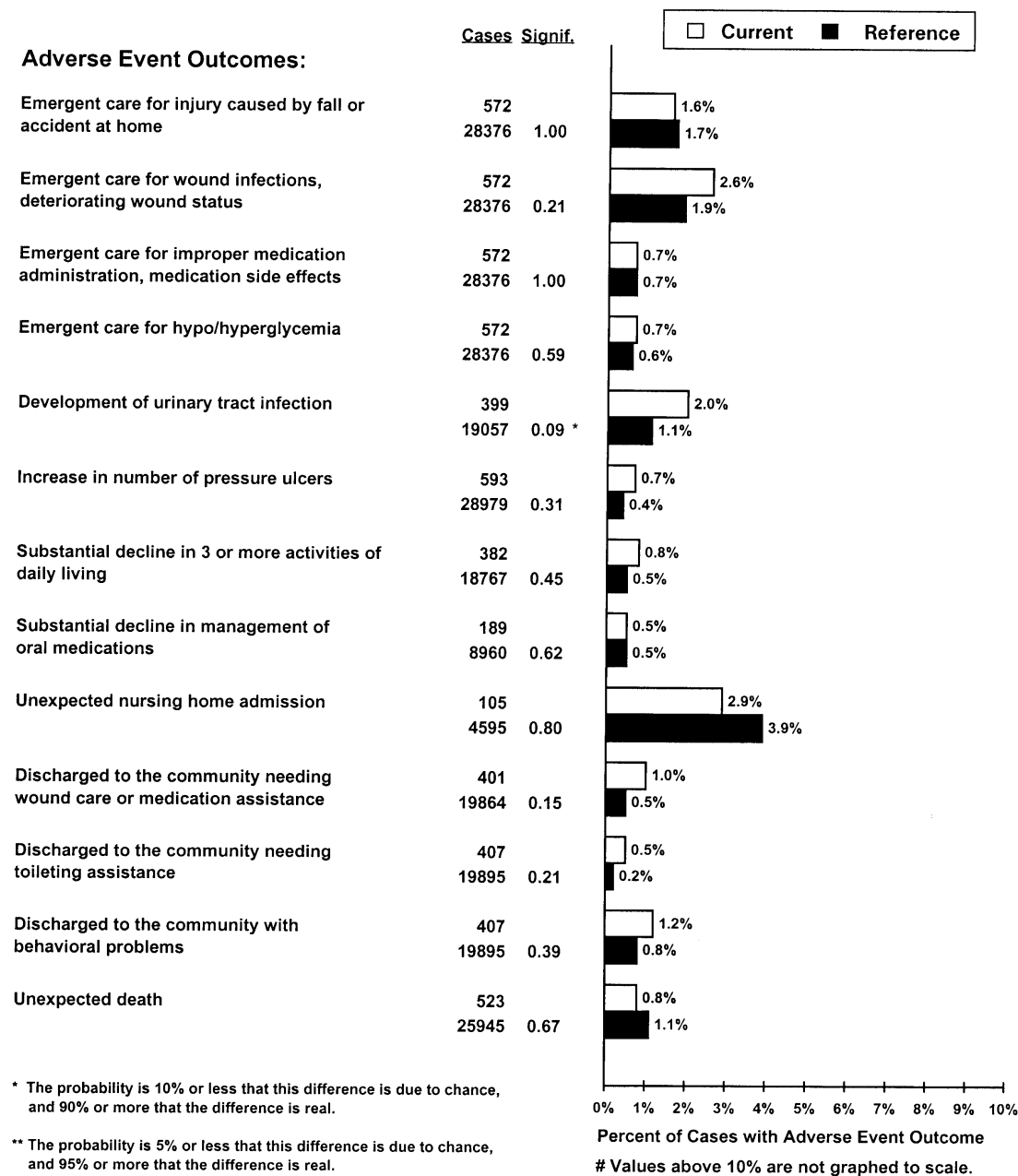
<sup>1</sup> A further condition for inclusion in both case mix and adverse event outcome reports is that there must be a matching start or resumption of care assessment on the OASIS system, which effectively excludes from analysis episodes of care which started prior to the July 1999 effective date of the OASIS reporting requirement for home health agencies.

**FIGURE 3.1: Sample (Graphical) Adverse Event Outcome Report.**

Agency Name: Faircare Home Health Services  
 Agency ID: HHA01  
 Location: Anytown, USA  
 Medicare Number: 007001  
 Medicaid Number: 999888001

Requested Current Period: 09/1999-08/2000  
 Actual Current Period: 09/1999-08/2000  
 Number of Cases in Current Period: 601  
 Number of Cases in Reference Sample: 29983  
 Date Report Printed: 11/30/2000

### Adverse Event Outcome Report



**TABLE 3.1: Sample (Tabular) Adverse Event Outcome Report.**

Agency Name: Faircare Home Health Services  
 Agency ID: HHA01  
 Location: Anytown, USA  
 Medicare Number: 007001  
 Medicaid Number: 999888001

Requested Current Period: 09/1999-08/2000  
 Actual Current Period: 09/1999-08/2000  
 Number of Cases in Current Period: 601  
 Number of Cases in Reference Sample: 29983  
 Date Report Printed: 11/30/2000

### Adverse Event Outcome Report Patient Listing

#### Emergent Care for Injury Caused by Fall or Accident at Home

Complete Data Cases: 572      Number of Events: 9      Agency Incidence: 1.6%      Reference Incidence: 1.7%

Patient ID	Last Name	First Name	Gender	Birth Date	SOC/ROC	DC/Transfer
654896104	Craig	Ron	M	05/11/1925	09/22/99	12/27/99
544740859	Hawk	Janet	F	08/29/1935	02/12/00	04/18/00
445140130	Schlue	Cindy	F	06/13/1939	03/28/00	06/10/00
674803196	Staloski	Mina	F	09/16/1933	05/22/00	05/26/00
175305360	Amador	Arnold	M	06/06/1928	11/17/99	11/25/99
451896539	Tosh	Ellen	F	01/16/1934	05/27/00	06/02/00
410242616	Adkins	Lisa	F	01/01/1925	04/28/00	08/05/00
037083519	Rose	Cecil	M	04/11/1924	09/26/99	12/05/99
038923073	Tanaka	Bruce	M	04/28/1938	09/02/99	11/01/99

#### Emergent Care for Wound Infections, Deteriorating Wound Status

Complete Data Cases: 572      Number of Events: 15      Agency Incidence: 2.6%      Reference Incidence: 1.9%

Patient ID	Last Name	First Name	Gender	Birth Date	SOC/ROC	DC/Transfer
601714911	Potter	Cindy	F	10/03/1938	03/22/00	03/23/00
605578965	Ridgeway	Jersey	F	08/16/1919	09/24/99	09/25/99
848022770	Jenkins	Steve	M	08/29/1931	01/20/00	02/18/00
157235821	Connot	Carole	F	09/01/1917	05/02/00	05/09/00
364627291	Kapoi	Bernadeane	F	09/03/1930	12/09/99	03/05/00
606116128	Dickerson	Mary Anne	F	07/27/1935	04/16/00	07/23/00
223434953	Dedmond	Cathy	F	06/26/1917	09/19/99	10/28/99
760263344	Fortis	Jay	M	01/10/1928	01/19/00	03/23/00
203633766	Liblanc	Marilyn	F	05/04/1924	11/07/99	01/29/00
890266877	Beave	Levond	F	12/10/1934	06/19/00	06/30/00
774698823	Anselm	Marge	F	01/05/1941	05/02/00	08/01/00
752690714	Freeman	Victoria	F	06/04/1932	05/21/00	07/31/00
388120765	Fatzer	Virginia	F	08/17/1920	02/10/00	03/24/00
648423584	DeBlois	Lori	F	02/01/1915	11/18/99	12/22/99
425853763	Anderson	Carolyn	F	08/03/1924	04/19/00	05/26/00

#### Emergent Care for Improper Medication Administration, Medication Side Effects

Complete Data Cases: 572      Number of Events: 4      Agency Incidence: 0.7%      Reference Incidence: 0.7%

Patient ID	Last Name	First Name	Gender	Birth Date	SOC/ROC	DC/Transfer
003678864	Ryan	Betty	F	04/27/1923	11/13/99	01/09/00
745499372	Burke	Leonard	M	12/20/1918	02/22/00	05/03/00
223324976	Rice	Bonnie	F	12/04/1924	10/23/99	02/17/00
039892392	Pierce	Susan	F	07/13/1935	01/30/00	04/10/00

#### Emergent Care for Hypo/Hyperglycemia

Complete Data Cases: 572      Number of Events: 4      Agency Incidence: 0.7%      Reference Incidence: 0.6%

Patient ID	Last Name	First Name	Gender	Birth Date	SOC/ROC	DC/Transfer
370756750	McCowan	Sandra	F	11/10/1931	10/06/99	01/06/00
571865967	Badger	Penny	F	01/18/1929	01/02/00	04/24/00
184679971	Penn	Deborah	F	06/02/1915	07/22/00	08/29/00
414789317	Thompson	Pat	F	12/14/1931	06/15/00	08/02/00

**TABLE 3.1: Sample (Tabular) Adverse Event Outcome Report. (cont'd)**

Agency Name: Faircare Home Health Services  
 Agency ID: HHA01  
 Location: Anytown, USA  
 Medicare Number: 007001  
 Medicaid Number: 999888001

Requested Current Period: 09/1999-08/2000  
 Actual Current Period: 09/1999-08/2000  
 Number of Cases in Current Period: 601  
 Number of Cases in Reference Sample: 29983  
 Date Report Printed: 11/30/2000

### Adverse Event Outcome Report Patient Listing

#### Development of Urinary Tract Infection

Complete Data Cases: 399		Number of Events: 8	Agency Incidence: 2.0%		Reference Incidence: 1.1%	
Patient ID	Last Name	First Name	Gender	Birth Date	SOC/ROC	DC/Transfer
859294045	Dunn	Jim	M	10/17/1920	11/20/99	12/19/99
565570409	Rosling	Walter	M	10/21/1938	05/26/00	08/13/00
014760252	Connelly	Sherwood	M	11/14/1940	07/29/00	08/30/00
472551333	Guinn	Rosemary	F	08/18/1915	03/17/00	03/26/00
773642368	Mullins	Caleb	M	01/23/1938	10/19/99	01/20/00
759333066	Beck	Jan	F	07/04/1929	07/25/00	07/30/00
136056137	Hayes	Edd	M	10/05/1929	05/07/00	05/07/00
947917397	St. Germain	Teri	F	11/29/1940	06/17/00	07/18/00

#### Increase in Number of Pressure Ulcers

Complete Data Cases: 593		Number of Events: 4	Agency Incidence: 0.7%		Reference Incidence: 0.4%	
Patient ID	Last Name	First Name	Gender	Birth Date	SOC/ROC	DC/Transfer
315867385	Dodge	Robert	M	12/06/1937	10/29/99	11/09/99
133711082	Koch	Jane	F	11/11/1915	10/20/99	02/14/00
417495912	Beal	Tracy	F	04/07/1914	04/05/00	07/06/00
870032669	Martineau	Lyn	M	12/19/1930	07/24/00	08/03/00

#### Substantial Decline in 3 or More Activities of Daily Living

Complete Data Cases: 382		Number of Events: 3	Agency Incidence: 0.8%		Reference Incidence: 0.5%	
Patient ID	Last Name	First Name	Gender	Birth Date	SOC/ROC	DC/Transfer
854314071	Henrich	Byron	M	06/29/1940	04/06/00	08/02/00
424787337	Seals	Flo	F	11/20/1927	02/01/00	02/21/00
500582191	Klebe	Kathleen	F	08/26/1916	01/27/00	04/03/00

#### Substantial Decline in Management of Oral Medications

Complete Data Cases: 189		Number of Events: 1	Agency Incidence: 0.5%		Reference Incidence: 0.5%	
Patient ID	Last Name	First Name	Gender	Birth Date	SOC/ROC	DC/Transfer
502513146	Botello	Brenda	F	06/03/1924	05/01/00	08/20/00

#### Unexpected Nursing Home Admission

Complete Data Cases: 105		Number of Events: 3	Agency Incidence: 2.9%		Reference Incidence: 3.9%	
Patient ID	Last Name	First Name	Gender	Birth Date	SOC/ROC	DC/Transfer
952821056	Burcham	Nancy	F	09/17/1936	05/30/00	07/08/00
118840231	Elder	Jean	F	01/20/1923	09/06/99	10/15/99
645083076	Condon	Jack	M	04/29/1929	07/20/00	08/05/00

**TABLE 3.1: Sample (Tabular) Adverse Event Outcome Report. (cont'd)**

Agency Name: Faircare Home Health Services  
 Agency ID: HHA01  
 Location: Anytown, USA  
 Medicare Number: 007001  
 Medicaid Number: 999888001

Requested Current Period: 09/1999-08/2000  
 Actual Current Period: 09/1999-08/2000  
 Number of Cases in Current Period: 601  
 Number of Cases in Reference Sample: 29983  
 Date Report Printed: 11/30/2000

### Adverse Event Outcome Report Patient Listing

#### Discharged to the Community Needing Wound Care or Medication Assistance

Complete Data Cases: 401      Number of Events: 4      Agency Incidence: 1.0%      Reference Incidence: 0.5%

Patient ID	Last Name	First Name	Gender	Birth Date	SOC/ROC	DC/Transfer
047170580	Jackson	Todd	M	08/22/1917	02/17/00	06/16/00
019528462	Hochman	Chris	M	11/13/1917	04/14/00	07/16/00
197215357	Libiran	Andrew	M	11/05/1937	10/11/99	10/16/99
407160030	Trombley	Mona	F	03/21/1933	04/17/00	07/14/00

#### Discharged to the Community Needing Toileting Assistance

Complete Data Cases: 407      Number of Events: 2      Agency Incidence: 0.5%      Reference Incidence: 0.8%

Patient ID	Last Name	First Name	Gender	Birth Date	SOC/ROC	DC/Transfer
675779542	Egger	Patricia	F	08/22/1915	04/06/00	05/13/00
083773193	Loper	Patrick	M	10/18/1924	03/13/00	04/18/00

#### Discharged to the Community With Behavioral Problems

Complete Data Cases: 407      Number of Events: 5      Agency Incidence: 1.2%      Reference Incidence: 0.8%

Patient ID	Last Name	First Name	Gender	Birth Date	SOC/ROC	DC/Transfer
653640671	Quick	Roseann	F	09/13/1934	10/22/99	11/20/99
251160016	Enkey	John	M	09/22/1940	02/03/00	05/12/00
932752042	Maben.	Sylvia	F	07/23/1915	02/28/00	03/05/00
239777508	Gayle	Diane	F	09/09/1937	05/11/00	07/06/00
511499232	Jones	Ronald	M	12/03/1932	10/15/99	12/03/99

#### Unexpected Death

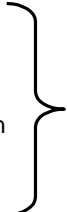
Complete Data Cases: 523      Number of Events: 4      Agency Incidence: 0.8%      Reference Incidence: 1.1%

Patient ID	Last Name	First Name	Gender	Birth Date	SOC/ROC	DC/Transfer
205640357	Carlson	Rosie	F	09/24/1931	01/02/00	01/03/00
027698081	Niccolucci	Sandy	F	07/13/1922	04/27/00	04/28/00
132486118	Starnes	Isabella	F	03/08/1937	06/08/00	06/17/00
031382376	Trinidad	Ann	F	06/06/1933	05/22/00	08/25/00

## C. MEANING OF THE INFORMATION IN THE ADVERSE EVENT REPORT

An adverse event potentially reflects a serious health problem or decline in health status for an individual patient. The word "potentially" is important. For example, look at the event "Emergent Care for Wound Infections, Deteriorating Wound Status." This event is computed from the response to OASIS items M0830 and M0840 at Discharge or Transfer. When an agency investigates this event, they may find situations where the patient appropriately went or was sent to the

**TABLE 3.2: Source(s) of Adverse Event Outcome Report Information.**

Adverse Event Outcome Report Measures	OASIS-B1 Item(s) and Time Point(s)
Emergent Care for Injury Caused by Fall or Accident at Home	 M0830 (Transfer, or Discharge) M0840 (Transfer, or Discharge)
Emergent Care for Wound Infections, Deteriorating Wound Status	
Emergent Care for Improper Medication Administration, Medication Side Effects	
Emergent Care for Hypo/Hyperglycemia	
Development of Urinary Tract Infection	M0510 (SOC/ROC and Discharge)
Increase in Number of Pressure Ulcers	M0450 (SOC/ROC and Discharge)
Substantial Decline in Three or More Activities in Daily Living	M0640, M0670, M0680, M0690, M0700 (SOC/ROC and Discharge)
Substantial Decline in Management of Oral Medications	M0780 (SOC/ROC and Discharge)
Unexpected Nursing Home Admission	M0900 (Transfer/Discharge) M0270 (SOC/ROC)
Unexpected Death	M0100 (Discharge/Transfer/Death) M0280 (SOC/ROC)
Discharged to Community Needing Wound Care or Medication Assistance	M0870, M0570, M0780, M0460, M0488 (Discharge)
Discharged to Community Needing Toileting Assistance	M0870, M0350, M0700, M0680 (Discharge)
Discharged to Community with Behavioral Problems	M0870, M350, M0610 (Discharge)

emergency room or physician's office at the very first sign of deteriorating wound status. This would be an example of appropriate care. However, the agency may also find situations where a wound's status was getting worse and worse and worse over the period of several visits -- and the responsible clinician was not responding in any way to this deterioration in status. This would be determined to be inadequate care, and in this case the adverse event indicates a problem in patient care.

Whether or not the care for a patient listed on the tabular adverse event outcome report was problematic cannot be known until the agency actually investigates the care provided. Guidance on conducting an investigation of care provided is detailed in Section 4 of this manual.



## **SECTION 4**

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### **USING REPORTS FOR THE OUTCOME-BASED QUALITY MONITORING PROCESS**

#### **A. OVERVIEW**

Once an agency obtains its case mix and adverse event outcome reports, the staff can begin the outcome-based quality monitoring (OBQM) process. The report information allows the HHA to investigate specific outcomes (from the adverse event outcome report) to determine where changes in care provision are indicated. We encourage agencies to investigate each of the adverse event outcomes presented in the report, as each event represents a potential problem in care delivery. The precise sequence in which an agency investigates these outcomes is influenced by its case mix report as well as the incidence of specific adverse event outcomes. If changes in care provision are indicated from this investigation, an improvement plan can be developed, implemented, and monitored over time to determine whether the desired changes are being consistently performed by agency clinical staff. Subsequent adverse event outcome reports will provide feedback to the agency on the success of these efforts.

#### **B. STEPS IN THE QUALITY MONITORING PROCESS TO FOLLOW WITH THE ADVERSE EVENT OUTCOME REPORTS**

The sequence of steps to follow in this quality monitoring process is:

- review each report briefly to obtain an overall sense of the content;
- review the case mix report in more detail;
- from this review, prioritize the potential adverse event outcomes to investigate first;
- review the care provided to patients listed in the tabular adverse event outcome report;
- identify instances of problematic care provision; draw conclusions about aspects of care delivery that will need change or modification;
- develop an improvement plan that incorporates necessary changes in care delivery;
- implement the plan in the agency;

- monitor the plan after implementation; and
- review the subsequent adverse event outcome reports to determine whether the results of the care delivery have changed the incidence of the adverse events in the agency.

Each of these steps is discussed in more detail in the remainder of this section. As examples, we will utilize the case mix and adverse event outcome reports for Faircare Home Health Services for the report period of September 1999 through August 2000, (refer to Tables 2.1, 3.1, and 3.2, and Figure 3.1).

### **1. Big Picture Review**

Review your agency's case mix report and graphical adverse event outcome report to obtain an overall sense of the content. This review should be brief and done in an "overview" manner to obtain a broad sense of the contents. Use the *Guidelines for Reviewing the Case Mix and Adverse Event Outcome Reports* (found in the Appendix of this manual) for the review of each report.

### **2. Detailed Case Mix Report Review**

Conduct an in-depth review of the case mix report. This detailed review examines the types of patients for whom your agency is providing care, their characteristics at the start of a care episode, and their average length of stay. Such a review provides an opportunity to verify (or not) the accuracy of your perceptions of your agency's caseload. If you discover your perceptions are extremely different from the picture of your patients presented in the case mix report, data accuracy problems may exist with your agency's OASIS data. Keep this possibility in mind as you proceed with your review.

A large reference sample provides the comparison for your agency's patients in these reports. Because a large sample size increases the likelihood of statistically significant differences being found between your agency and the reference group, you will not want to limit your review of the case mix report to only those factors with statistically significant differences. There are additional considerations to bear in mind, which we highlight in this section. The following points are helpful in evaluating the various sections of the report.

- a. *What is my patients' average age?* Is this higher than, lower than, or about the same as the reference group? If there is a difference, is it statistically significant? Refer to Faircare's case mix report. Note that Faircare's patients are younger than the reference group to a statistically significant extent.

- b. *Scan the payment source, current living situation, assisting persons' information, and primary caregiver assistance.* The comparison with the reference group may or may not be meaningful to examine more closely; most agencies simply are interested in the raw data percentages of their own patients that fall into the various categories.
- c. *Look at the location of your patients 14 days prior to SOC/ROC.* Do you tend to have more referrals from specific types of inpatient facilities? Note that Faircare's patients were not particularly different from the reference sample in these areas.
- d. *Review your patients' overall prognoses at the start of the episodes.* This is one area where you may begin to infer your patients' overall acuity level. Faircare's patients are similar to those in the reference group in respect to recovery from illness, but fewer had a good rehab prognosis.
- e. *Assess your patients' overall functional status at SOC/ROC and prior to SOC/ROC, for both Activities of Daily Living (ADLs) and Instrumental Activities of Daily Living (IADLs).* Look especially for highly significant differences between your patients and those in the reference group and determine whether those differences show your patients to be generally more impaired, generally less impaired, or possessing a mixed pattern of sometimes more impairments and sometimes less. In ADLs, Faircare's patients were significantly more impaired in grooming at SOC/ROC (and prior to SOC/ROC), but significantly less impaired in transferring at those same time points. In IADLs, Faircare's patients showed a pattern of being significantly more impaired.
- f. *Review various aspects of your patients' health status, such as respiratory status, sensory status, pain, and therapies being received at home.* Note that Faircare's patients are very similar to the reference group in nearly all these areas except one (Faircare's patients are slightly less impaired in hearing).
- g. *Examine aspects of your patients' neurologic/emotional/behavioral health status.* Faircare has a higher percentage of its patients with a severe anxiety level and a much larger percentage with behavior problems more than twice a week.
- h. *Review the presence of integumentary status problems.* Faircare has a higher percentage of patients with pressure ulcers and a much larger percentage with Stage 3-4 pressure ulcers.

- i. *Consider elimination status as you examine your patients' health status.* Note that Faircare has a lower percentage of patients with urinary incontinence or catheters present, but a larger percentage with UTIs within the past 14 days.
- j. *Examine the percentage of patients with acute or chronic conditions.* Note the highest frequencies within the agency in addition to the presence of significant differences from the reference group. For example, Faircare's most frequent acute condition is that of open wounds/lesions, followed by cardiac/peripheral vascular conditions. Faircare's most frequent chronic condition is that of dependence in medication administration, followed by dependence in living skills, and dependence in personal care. Faircare is most significantly different from the reference group in its percentage of patients with contagious/communicable conditions, acute mental/emotional conditions, chronic dependence in personal care, and in the percentage of chronic patients who have caregivers present.

**DATA QUALITY ALERT:**

A high percentage of patients with contagious/communicable conditions should serve as a "red flag" of potential data quality problems to an agency. If an agency is surprised at the large percentage of its patients with contagious/communicable conditions, it is appropriate to check the ICD codes that have been entered into OASIS, particularly as responses to M0190 or M0210. If two-digit surgical procedure codes are erroneously entered in response to these items, they may be recognized by the data entry software as three-digit codes signifying contagious/communicable diseases (if data entry staff mistakenly enter a leading zero). An erroneously large number of patients are thus coded as having contagious/communicable diseases. (An example of this problem is the two-digit surgical procedure code for joint repair, 81, erroneously recorded in response to M0190; if this is entered as 081, the data transmitted to the State system will reflect the medical diagnosis of "other typhus," which is an uncommon home care diagnosis.) Agencies with a statistically significantly large percentage of patients with contagious/communicable diseases thus are advised to investigate further for the possible presence of this type of error.

- k. *Evaluate the highest frequency of diagnoses for which patients are receiving home care.* Note that Faircare has some areas where these diagnoses are significantly different from the reference group, including infectious/parasitic disease (another sign of the potential data accuracy

problems described above), mental diseases, nervous system diseases, and other injuries.

- I. *Review your agency's average length of stay (LOS) to discharge (or transfer to an inpatient facility).* Faircare's LOS is significantly longer than the LOS for the reference sample.

### **3. Prioritize Adverse Event Outcomes for Investigation**

Next, proceed to the graphic adverse event outcome report. Using overall impressions of your agency's patients gathered from the case mix report, select those adverse event outcome(s) most relevant to your agency.

High-priority adverse event outcomes are: (a) those with the most clinical relevance to the agency, and (b) those with the highest incidence as compared to the reference group. An "ideal" adverse event outcome for early investigation will meet both of these criteria.

Using Faircare as an example, three adverse event outcomes stand out as high priority for investigation. Remember that approximately one-third of Faircare's patients had open wounds/lesions (the most frequently occurring acute condition). The adverse event outcome report shows a higher percentage of Faircare's patients than the reference group receiving Emergent Care for Wound Infections or Deteriorating Wound Status. A higher percentage of Faircare's patients also were Discharged to the Community Needing Wound Care or Medication Assistance. (These two patient problems are reported in a single adverse event outcome. Should the patients need medication assistance rather than wound care, remember that Faircare also had a high percentage of patients with chronic dependence in medication administration.)

Faircare also had a significantly higher percentage of patients with pressure ulcers at SOC (or ROC), yet had a larger rate of Increase in the Number of Pressure Ulcers than the reference group. Any of these three adverse event outcomes are particularly relevant for Faircare as a priority for further investigation.

Two other adverse events appear to be potential high priority candidates. Though Faircare had a significantly larger percentage of patients with UTIs at SOC/ROC, it also had a large number of patients who Developed UTIs during the care episode. Another possible candidate for early investigation is the adverse event of Discharged to the Community with Behavioral Problems, given Faircare's high percentage of patients with behavioral problems more than twice a week.

From this review, at least five adverse event outcomes rank high on Faircare's prioritized list as most important to investigate first. Your agency also can prepare such a list of adverse event outcomes (based on the characteristics of your patients) that are most relevant to your agency.

#### **4. Identify Patients Experiencing the Selected Adverse Event Outcome**

Once a specific adverse event outcome has been selected, refer to the tabular version of the adverse event outcome report to know which patients experienced the adverse event during the course of their care episode.

#### **5. Select Cases to Investigate**

Decide whether the episodes of care for all patients who experienced the adverse event, as listed in the tabular report, should be investigated or only a sample used. Agencies with a very large total caseload may find 100 or more patients listed, though the percentage of patients experiencing an adverse event may be two percent or fewer. Obviously the detailed investigation of 100 or more episodes of care is a very burdensome activity. In this situation agencies should sample from the listed cases. We suggest that an adverse event outcome investigation include at least 20 cases if more than 30 are represented in the total listing. Agencies such as Faircare with fewer than 30 cases listed for each adverse event should include every case in their investigation.

#### **6. Review Clinical Records for Cases Selected**

Using the SOC (or ROC) and the discharge (or transfer) dates listed in the report, review the clinical records of the listed patients.

a. Determine the Portion of an Episode to Review: Depending on the specific adverse event, the entire episode of care need not always be reviewed. For those events described as Emergent Care for ..., the specific instance(s) of emergent care will need to be located in the episode. The care review then should address at least a few visits that occurred prior to the emergent care. Other events should be investigated near the time of discharge from the agency (Unexpected Death, Unexpected Nursing Home Admission, and Discharged to the Community Needing...). The remaining adverse event outcomes (Development of a Urinary Tract Infection, Increase in Number of Pressure Ulcers, Substantial Decline in 3 or More Activities of Daily Living, and Substantial Decline in Management of Oral Medications) are most likely to require a closer review of the entire care episode.

b. Develop a Chart Audit Tool: When reviews are performed by more than one individual in the agency, the total number of reviews can be done quickly, and the implications for overall care provision can be determined sooner.

However, multiple reviewers also increase the likelihood of inconsistency between the reviews. The development of a chart audit tool may be something to consider. An objective and specific chart audit tool decreases the potential for inconsistency between reviewers.

To develop such an audit tool, agency clinical staff can be asked to quickly list several clinical actions that would avoid the occurrence of the adverse events. These clinical actions can be compiled into the chart audit tool used for this review. Because it is suggested that the adverse event outcomes be investigated in their entirety over the course of several months, the chart audit tools can be refined and reused in response to future adverse event outcome reports. The audit tool also facilitates tallying findings from the reviews, which assists to formulate conclusions, even in those cases where one person conducts all the reviews.

c. Identify the Appropriateness of Care Provision: In reviewing the patient care provided, your agency investigative team should keep in mind the definition of adverse events as occurrences that potentially reflect a serious health problem or problem in quality of care for an individual patient. In the investigation of care, the team is likely to discover some instances of highly appropriate care and some instances where care might have been improved. For example, if Faircare's Quality Improvement (QI) Team begins an investigation of the adverse event outcome Emergent Care for Wound Infections, Deteriorating Wound Status, it would review all 15 instances where patients received such emergent care. It is very possible that in some of those instances, the QI Team will discover patients being sent to the emergency room at the very first signs of deteriorating wound status. The team would consider this to be very appropriate care. In other instances, however, there may have been signs or symptoms of deteriorating wound status over several visits with no communication with the physician or no apparent recognition (on the part of the responsible clinician) of this deteriorating status. Faircare's QI team would undoubtedly regard this as evidence of inadequate care.

d. Summarize the Clinical Record Review: The conclusions derived from the clinical record review are summarized as an important document for use in the agency's total quality monitoring program. We strongly suggest that a summary include both instances of highly appropriate care provision and instances of problems in care provision. Such a summary of highly appropriate care provision is ideal to share with clinical staff as a powerful reinforcement of the worth of accurate OASIS data collection and the meaningful utility of the adverse event outcome report. Such an opportunity should not be missed!

When problems in care provision are noted, your summarization will lead to the development of an improvement plan. The elements of such a plan are described in the next section.

## **7. Develop An Improvement Plan**

Your agency will want to take steps to improve care in those areas where inadequate or problematic care provision is noted. This is best done through development of an improvement plan. Such a plan should include the following components:

a. Statement of the Problem: A clear identification of the problem in terms of patient care delivery is necessary. Examples of specific problem statements are: patient teaching does not emphasize the signs and symptoms of wound infection, patient teaching does not include appropriate indications for when to call the home care nurse for questions about wound status, patient's understanding of information taught was not evaluated during first two weeks of care, etc.

b. List of New Care Practices: State the care practices expected to occur in the future. What are clinicians expected to do when they encounter patients with similar care problems/issues from now on? These statements also should be clearly stated expectations, e.g., patients with wounds should be instructed to follow a specific procedure for questions about their wound, etc.

c. Delineation of Implementation Process: Implementation allows the plan to move from paper to reality. You can facilitate this process with a clear delineation of implementation steps and appropriate delegation of responsibility/authority, e.g., the current teaching tool for use with wound patients will be revised to include a procedure for determining whom to call about wound concerns. (Additional discussion of implementation approaches most effective in changing clinical care delivery can be found in Supplement A.)

d. Mechanism for Monitoring New Care Practices: Identify ways to monitor the staff's use of new (or revised) care practices. Because home health care providers practice autonomously, modifying care practices is sometimes more challenging than in other clinical settings. Agency management staff should not simply "assume" that suggested practice modifications will necessarily occur. A monitoring approach might include the use of the chart audit tool to review records of discharged patients at specific intervals. If the monitoring activity involves clinical record review, this often can be incorporated into other chart review activities and completed in a few additional minutes.

A designation of the appropriate individual(s) or group within the agency to conduct the monitoring activities. A plan also identifies who will compile the

results of the monitoring activities, when these results will be reviewed, and by whom. If clinical care delivery is not changing as desired, who will know this situation and when? This is important feedback for the group who puts the improvement plan into place.

### **8. Implement the Improvement Plan as Designed**

The plan itself includes all the necessary steps to follow, but it must be actually put into place for expected change to occur. This is comparable to making a resolution a reality.

### **9. Determine Effectiveness of the Improvement Plan**

Determine whether the modification of clinical care practices has made a difference by examining the next adverse event outcome report. When the next adverse event outcome report is received (assuming that the incidence of the adverse event outcome under consideration is not zero), it will be necessary to review the incidents (or a sample of the incidents) reported. As you prepare for this review, remember that not every adverse event outcome represents a problem in care delivery. Some events may reveal the presence of appropriate care. Therefore, it is unlikely for the incidence of any of these events to drop to zero, even with the implementation of more effective care practices. This perspective will help agency staff be realistic in their expectations of what the subsequent reports may look like.

We encourage home health agencies to investigate all the adverse events appearing in the adverse event outcome report, but this investigation can proceed in phases. The approach discussed in this section involves prioritizing outcome events for investigation. Once you have determined the priority order, the investigation can be integrated into your agency's routine quality program. This is the overall goal -- to incorporate the monitoring of adverse event outcomes as part of an ongoing quality program.

## **C. SUMMARY**

The use of the adverse event outcome and case mix reports to monitor the quality of care provided to home care patients represents the use of OASIS data for information beyond that of patient status. From these reports, clinical staff become aware of the variety of information available from OASIS data and are likely to look forward to various reports that will be made available. There is an increased understanding of the need for overall data accuracy within the agency. Quality improvement staff should be aware of this emphasis and expect to incorporate additional discussions of OASIS data quality into staff meetings, newsletters, bulletin boards, and other methods of agency communication.

These reports and the related investigation of care processes help agencies move beyond "hunches" in evaluating quality of patient care. Now you are able to expand quality monitoring programs to incorporate an examination of the effects of care on patients. These reports represent an important first step in truly using outcome data for quality improvement.

## SUPPLEMENT A TO SECTION 4

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### CHANGING CLINICAL PRACTICE

Modifying clinicians' care practices to incorporate interventions that are more effective has been studied in many health care settings. The challenges are probably higher in home care than in most other settings, given the autonomous nature of the practice site and considering that clinicians of varying disciplines provide care. Nonetheless, certain key factors have been identified as contributing to success in modifying care delivery.

**Does the staff know what the change is?** While seemingly obvious as an essential ingredient, this aspect of practice change is sometimes overlooked. This step needs to involve some type of educational component, whether formally or informally presented. Care processes should not be expected to change without the clinicians being informed of why the change is needed, what the new care processes are, and the rationale for the processes being selected for implementation. Periodic repetition of the information is also important to acknowledge and plan.

**Has the necessary knowledge/skill (of the new process) been conveyed?** Again, apparently an obvious step, but not always well implemented. This step also involves an educational and practice component. If performance of a procedure is involved, a return demonstration should be required. Make the educational experience brief but to the point (and fun).

**Do organizational processes allow the change to occur?** An extremely important step that acknowledges the reality that simply "telling" clinicians to change behavior is unlikely to produce the desired result. System modification is necessary for most process change to be fully implemented, and this is true of care delivery as well as other processes. Those responsible for planning and implementing new or modified approaches to care delivery also should be responsible for the review and possible modification of internal agency processes that support care delivery change. For example, this may include making new equipment available or modifying documentation that incorporates reminders of new processes or other similar internal system modifications.



## **SECTION 5**

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### **ROLE OF THESE REPORTS IN THE AGENCY'S OVERALL QUALITY PROGRAM**

The Conditions of Participation for Medicare-certified home health agencies at §484.52 require an overall evaluation of the agency's total program at least annually and clinical record review at least quarterly. Patient care services are identified as one component of the agency's total program that must be included in this evaluation. The use of the case mix and adverse event outcome reports to review and improve patient care delivery is congruent with these program evaluation components.

It is also anticipated that State survey agencies will incorporate the adverse event outcome reports into their pre-survey preparation (off-site) as well as onsite during the actual survey. Specific adverse event outcomes and their potential incorporation in the survey process are included in this section.

#### **A. CURRENT REGULATORY REQUIREMENTS**

##### **Condition of Participation: Evaluation of the Agency's Program - §484.52**

The HHA has written policies requiring an overall evaluation of the agency's total program at least once each year by a group of professional advisory personnel (or a committee of this group), HHA staff, and consumers, or by professional individuals outside the agency working in conjunction with consumers. The evaluation consists of an overall policy and administrative review and a clinical record review. The evaluation assesses the extent to which the agency's program is appropriate, adequate, effective, and efficient. Results of the evaluation are reported to and acted upon by those responsible for the operation of the agency and are maintained separately as administrative records.

##### **1. Standard: Policy and Administrative Review - §484.52(a)**

As part of the evaluation process, the policies and administrative practices of the agency are reviewed to determine the extent to which they promote patient care that is appropriate, adequate, effective, and efficient. Mechanisms are established in writing for the collection of pertinent data to assist in evaluation.

##### **2. Standard: Clinical Record Review - §484.52(b)**

At least quarterly, appropriate health professionals, representing at least the scope of the program, review a sample of both active and closed clinical records to determine whether established policies are followed in furnishing

services directly or under arrangement. There is a continuing review of clinical records for each 60-day period that a patient receives home health services to determine adequacy of the plan of care and appropriateness of continuation of care.

## **B. USING ADVERSE EVENT OUTCOME REPORTS TO ADDRESS THE REGULATORY REQUIREMENTS**

In Standard §484.52(a), the agency is expected to have in place policies and administrative practices to promote patient care that is appropriate, adequate, effective, and efficient. Further, it is noted that mechanisms are established in writing for the collection of pertinent data to assist in evaluation.

The investigation of adverse event outcomes provides evidence of the agency's review of potential problems in care provision (the defining characteristic of adverse event outcomes). If problems in care provision are discovered, the development and implementation of the improvement plan demonstrates the agency's goal(s) of overcoming or minimizing existing problems. The use of a chart audit tool for the adverse event outcome investigation provides evidence of the collection of pertinent data to assist in evaluating patient care.

In utilizing the adverse event outcome investigation to (partially) address this standard, the HHA in its policies and administrative practices should identify the way(s) in which this investigation contributes to the ongoing monitoring of patient care. The agency policies and procedures must address how the reports are incorporated into the program evaluation. Summaries of the adverse event investigation findings also can be included in the description of this overall evaluation process.

In Standard §484.52(b), a quarterly record review is required to determine whether established agency policies are being followed in the provision of care. Two aspects of the adverse event outcome report investigation address this standard. It is expected that the chart audit tool used to investigate the adverse event outcome(s) will incorporate any relevant agency policies for care provision. The monitoring of clinician compliance with new (or revised) care practices likewise should incorporate relevant agency policies. When the investigation process is conducted in a phased manner, as presented in Section 4, the adverse events can be investigated and monitored on a quarterly basis. In this way, the associated record review is incorporated into an agency's current quality monitoring requirements.

The investigation of adverse event outcomes described in Section 4 thus becomes part of the agency's overall quality monitoring program. While these reports represent many agencies' first exposure to the use of outcomes for

quality improvement activities, the utility of the reports for the agency's overall quality monitoring program is clear. The benefit to patients is also evident as agencies focus on continuously improving the quality of care they provide. These early steps in outcome-focused quality improvement will lay the foundation for the agency-level activities to be conducted in response to the risk-adjusted outcome reports expected next year.

### **C. USING ADVERSE EVENT OUTCOME REPORTS IN THE SURVEY PROCESS**

State survey agencies as well as HHAs will have access to the adverse event outcome reports. State survey agencies will review available reports prior to going onsite as part of their pre-survey preparation. The reports may assist them to identify areas of focus during the onsite survey.

In addition, surveyors will also conduct onsite review during the actual survey. Surveyors will expect HHAs to be using the information in the reports to improve their patient outcomes. Surveyors will review the HHA's response to its own reports; that is, the agency's use of the reports for quality monitoring will be assessed. Those reviews of clinical practices, policies, and procedures will be of particular interest to surveyors, including how the agency addresses any systemic issues that may be present in an effort to reduce the incidence of similar adverse events in the future.

For example, surveyors may review the specific patient situations included in the adverse event outcome reports to determine whether any events might have been prevented. Another focus of the surveyor's review may be to determine whether any of the adverse event outcomes was due to non-compliance with the Conditions of Participation on the part of the HHA.

Table 5.1 presents examples of adverse event outcomes and actions the surveyor may take as part of his/her investigation during a survey.

**TABLE 5.1: Example Adverse Event Outcomes and Possible Surveyor Action.**

Adverse Event Outcome	Possible Surveyor Action and Relationship to Conditions of Participation
1. Emergent care for wound infections, deteriorating wound status.	Surveyors can review the comprehensive assessment and plan of care to see if any additional action on the part of the HHA might have prevented an emergency room visit or prevented wound deterioration. Was the patient's wound evaluated during the visits? Was the physician notified promptly of any changes in wound status that suggested a need to alter the plan of care? This relates to the plan of care requirements at 42 CFR 484.18(b).
2. Emergent care for improper medication administration, medication side effects.	Surveyors can determine if the HHA complied with the requirements included as part of the comprehensive assessment at 42 CFR 484.55 (c). Did the HHA include a review of all medications the patient was using to identify potential adverse effects and drug reactions, ineffective drug therapy, significant side effects, significant drug interactions, duplicate drug therapy, and noncompliance with drug therapy?
3. Substantial decline in management of oral medications.	Surveyors can review the comprehensive assessment, plan of care, and visit notes to determine when or if the HHA identified the patient's decline in managing his/her medications and what steps, if any, the HHA took to address the situation. Did the HHA notify the physician of the need to alter the plan of care? This relates to the requirement at 42 CFR 484.18.
4. Emergent care for injury caused by fall or accident at home.	Surveyors may review the comprehensive assessment to determine if any identified safety hazards were discussed with the patient and to review if the plan of care included any safety measures necessary to protect against injury, as required by 42 CFR 484.18. Surveyors will also review the patient's condition, diagnosis, medications, and plan of care to identify whether the HHA used the comprehensive assessment to make sound care planning decisions appropriate to the patient's needs.

**TABLE 5.1: Example Adverse Event Outcomes and Possible Surveyor Action. (cont'd.)**

Adverse Event Outcome	Possible Surveyor Action and Relationship to Conditions of Participation
5. Substantial decline in three or more activities of daily living.	Surveyors can review the initial assessment and ongoing clinical notes to determine if the patient's functional abilities had declined in relation to the specific care planned and provided by the HHA. If the patient's clinical and functional abilities did not progress, surveyors will review if intervening actions were instituted and recorded appropriately. Surveyors may review the coordination between staff to see if their efforts were coordinated effectively to support the objectives outlined in the plan of care, as required by 42 CFR 484.14(g).

The case mix and adverse event outcome reports thus can be used by both HHA and by the State survey agency to assess the quality of care provided to an HHA's patients. Agencies are strongly encouraged to take advantage of the information presented in the reports for their ongoing quality-monitoring program.